

ABSTRACT

Apparatus and methods allocate I/O bandwidth of an electrical component, such as an IC, by configuring an I/O interface into various types of interfaces. In an embodiment of the present invention, an I/O interface is 5 configured into either a bi-directional contact, unidirectional contact (including either a dedicated transmit or dedicated receive contact) or a maintenance contact used in a maintenance or calibration mode of operation. The I/O interface is periodically reconfigured to optimally allocate I/O bandwidth responsive to system parameters, such as changing data workloads in the electronic 10 components. System parameters include, but are not limited to, 1) number of transmit-receive bus turnarounds; 2) number of transmit and/or receive data packets; 3) user selectable setting 4) number of transmit and/or receive commands; 5) direct requests from one or more electronic components; 6) number of queued transactions in one or more electronic components; 7) 15 transmit burst-length setting, 8) duration or cycle count of bus commands, and control strobes such as address/data strobe, write enable, chip select, data valid, data ready; 9) power and/or temperature of one or more electrical components; 10) information from executable instructions, such as a software application or operating system; 11) multiple statistics over respective periods of time to 20 determine if using a different bandwidth allocation would result in better performance. The importance of a system parameter may be weighted over time in an embodiment of the present invention.